DOCUMENT RESUME

ED 475 933 IR 021 931

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TITLE	The Impact on Student Academic Achievement Using an Online Process Provided to Students and Parents.
PUB DATE	2002-06-00
NOTE	23p.; Written under the direction of Dorothy P. Fuller. In: NECC 2002: National Educational Computing Conference Proceedings (23rd, San Antonio, Texas, June 17-19, 2002); see IR 021 916.
AVAILABLE FROM	For full text: http://confreg.uoregon.edu/necc2002/ .
PUB TYPE	Reports - Research (143) -- Speeches/Meeting Papers (150) -- Tests/Questionnaires (160)
EDRS PRICE	EDRS Price MF01/PC01 Plus Postage.
DESCRIPTORS	Academic Achievement; *Access to Information; Comparative Analysis; *Computer Assisted Instruction; Elementary Education; Grade 6; Grades (Scholastic); *Instructional Effectiveness; Parent Participation; *Student Evaluation; Student Motivation; Student Surveys

ABSTRACT

This action research project investigated the effectiveness of having immediate access to grades, attendance, homework, and teachers' comments for parents and students alike. There are many involved in the success of children including the administration, teachers, parents and the students themselves. Advancing technology helps students become more accountable and parents more involved in their children's education. Seventy-seven of the 137 sixth grade students were used in the study. Utilizing PowerSchool, a Web-based student management program, the teachers organized and mandated weekly computer access to students' grades during the first and third quarters of the school year. During the second quarter, access by the students was optional. GPAs (Grade Point Averages) were compared at the end of each quarter of the school year to determine the impact of easy access to grades on student academic progress. The parent survey and the initial and end of second quarter student surveys are appended. (Contains 12 references, 4 figures, and 3 tables.) (Author/AEF)

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The Impact on Student Academic Achievement Using an Online Process Provided to Students and Parents

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Key Words: web-based, technology, student motivation, parent communication, student information management systems, PowerSchool

IR021931

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Abstract

This action research project investigated the effectiveness of having immediate access to grades, attendance, homework, and teachers' comments for parents and students alike. There are many involved in the success of children including the administration, teachers, parents and the students themselves. Advancing technology helps students become more accountable and parents more involved in their children's education. Seventy-seven of the 137 sixth grade students were used in the study. Utilizing PowerSchool, a web-based student management program, the teachers organized and mandated weekly computer access to students' grades during the first and third quarters of the school year. During the second quarter, access by the students was optional. GPAs (Grade Point Averages) were compared at the end of each quarter of the school year to determine the impact of easy access to grades on student academic progress.

Introduction

At the present time, web-based programs for student management are relatively new to school districts. Some schools have gone from DOS-based programs, to Windows programs, to the new web-based programs. The Internet has unlocked great possibilities for improving education, including bridging the communication gap between parents and schools, by increasing opportunities for more parental involvement. The new web-based student information management programs report accurate student information in a significant medium for parents and students alike (Keel, 2000).

Many changes in schools today can be credited to the utilization of computer technology. Students and parents are becoming more comfortable with computer technology and have the opportunities to communicate electronically with their school and teachers from home and the workplace. Web-based computer technology is proving to be a useful tool to promote communication between home and school, encouraging active collaboration among teachers, parents, and students in order to build greater student achievement in school (Patrikakou, Weissberg, & Rubentstein, 1998).

Student Involvement

Students should be more accountable for their academic progress; however, students do not always have an accurate, objective view of their academic abilities. Student perceptions of their education experiences generally influence their motivation more than the actual, objective reality of those experiences (Hicks-Anderman & Midgley, 1998). Kosakowski's (1998) summary of research on the benefits of information technology in learning environments indicates that students learn to think analytically and critically and to work collaboratively using

technology, thus gaining more control over their learning. Additionally, a 1996 Department of Education study confirmed that technology has a positive influence on students' attitudes, self-confidence and self-sufficiency toward learning. As students learn to use technology to take control of their learning, it is a reasonable leap to use technology to give them easy access to information about their academic performance.

Parental Involvement

Parental involvement makes a difference in the scholastic progress of children. When parents get involved in education, children try harder and accomplish more at school (Maynard & Howley, 1977). Culyer (1988) identified three critical parental responsibilities: send the children to school to learn, support the school, and compensate the children for academic gains. While many factors sway children's scholastic successes, Faucette (2000) found that the exact forecaster does not deal with income or social status, but rather the degree to which children's families are able to create an environment that supports learning, provides high expectations of their children, and includes active involvement in their children's learning.

Modern life places restrictions on parents' involvement in their children's education since parents, often single or both working, are progressively more stretched for time to be involved in their children's scholastic performance (Keel, 2000). A web-based information system that would allow parents easy access to information about their children's scholastic performance would be a big factor in increasing their active involvement and collaboration with the schools.

School Involvement

When parents are involved in their children's education, the schools as well as the students profit. The benefits are increased teacher self-confidence, better teacher ratings by parents, greater family support of the school, and higher student success (Faucette, 2000).

Riley (1995) suggests making schools parent-friendly, contacting families and removing barriers that make the parent unwilling to get involved in school activities. "When children are surrounded by adults and communities that value education, they get the message that their education is important" (Riley, 1995, p.1).

Patrikakou, Weissberg, and Rubenstein (1998) have provided the five "Ps" as a vision of a true and effective method to involve parents in a meaningful way. Teachers demonstrate *partnership as a priority* to show parents that they are interested in what parents think and how they can interact in the education process of their child. By *persistent communication,* parents are kept informed on a regular basis. Because phone calls are not always possible, the writing of notes, and even journaling keeps the frustration level at a minimum. It is of utmost importance to let parents know the *positive things* their children are doing in the classroom. *Personalized communication* that is initiated by the teacher lets the parents know that the teacher really cares. Parent-teacher conferences offer opportunities for parents and teachers to share information about the children. Teachers can offer *practical, specific suggestions* to show parents how to help their children at home. By using a web-based information system, teachers and parents can maintain regular communication about student progress and individual student accomplishments.

Technology Bridges the Gap

Technology provides tools to help schools administer an immense amount of information regarding students. One such tool is an electronic grade book that allows the teacher to record, average, and report grades. The grade book can state the level at which the objectives were met. The grade book can also be the tool that reports and links period-by-period attendance to the school management system (West, 2000). The Internet provides parents a venue into the classroom to view grades, attendance, assignments, and exam schedules. This serves as a link for

teachers and parents in the electronic world (Trejos, 2000).

Teachers have used various grading programs, and most school districts now have a student information package that allows the district to track students more easily. One of the benefits of having such a package is the ability to communicate with parents by e-mail; another benefit is the ease with which teachers can maintain and update their grades in an electronic grade book at any time (O Lone, 1997). However, merely providing online access to grades may not be enough. Parents have fears because they have heard upsetting news reports about the Internet and technology. The school needs to support the parents and help them learn the necessary skills for using the Internet. All, including students, parents, teachers, and administrators, should be involved when planning and using technology in the education place. It is vital to set up family technology programs to hopefully create competent technology users. When the parents are competent technology users, they will guide children in the home setting, and will become more involved with school (Faucette, 2000).

PowerSchool is an on-line student management program that allows teachers to instantly input grades, attendance, and comments; it enables both students and parents to view the current grades, attendance, and comments at any time. If access is provided to parents and students, will it make a difference in the academic achievement of the students? The purpose of this action research project was to describe the impact of an online student information management system on student achievement. The research focused on four questions:

1) Will students using an online program to regularly check their grades improve their academic progress?

2) Will parents becoming more involved with their children improve the students' academic progress?

3) Will teachers' encouragement for using an online program to check progress improve the academic progress of students?

4) Will the administration support students, parents, and teachers to improve student academic progress?

Research Design and ProceduresAction Research Group

The members of the action research group were six sixth-grade teachers, one computer teacher, and one principal all from Sturgis Williams Middle School. All of the sixth grade teachers and one computer teacher were responsible for organizing the lab time for sixth grade students to check their grades, attendance, and comments from teachers on a regular basis. This group was also in charge of the surveys, interviews, electronic communication, and personal memos of the students and parents. The computer teacher was in charge of setting up the lab times for the sixth grade teachers. The principal approved the surveys and interview questions. The computer teacher accessed the school management program for vital statistics that included GPAs and number of times students and parents accessed the program. Permission forms were given out during the "Back to School" night for parents and students to sign and return.

Population and Sample

The population used in this research was comprised of the sixth grade students and their parents from a middle school in the upper Midwest. This middle school houses six hundred eighty-six students in fifth through eighth grades. Of the one hundred thirty-seven sixth graders, two are Hispanic, one hundred thirty-four are Caucasian, and one is unclassified. Only students with parental permission comprised the sample group, which was 56% of the sixth grade students. These seventy-seven students were grouped into three performance levels. Thirty-two

students (42%) comprised the high GPA group, thirty-seven students (48%) were included in the average GPA group, and eight students (10%) comprised the lower GPA group.

Timeline

Phase 1 (August – October) The action research group issued and collected permission forms from parents and students. In the first quarter, the GPAs of all students included in the research established the baseline. Parents and students were given their access codes and trained in program use on "Back to School" night. Parents were also asked to complete the first survey. The first parent-teacher conferences were mid-October, and interviews were held with parents at that time. Student interviews were held the first part of October. GPAs were recorded at the end of the first quarter grading period.

Phase 2 (November – January) The recording of GPAs continued during this second phase. At the end of phase two, the information gathered from the second student survey was compiled.

Phase 3 (January – March) The final recording of GPAs occurred after completion of the third nine weeks. Final observations were made and noted through surveys received from the parents.

Data Collection Techniques

A general survey was handed out at various times throughout the school year to determine if the students and parents had Internet access at home, how often each group accessed the web-based program, if checking grades helped the students to improve, and if the students viewed their grades with their parents. The initial surveys were distributed to students and parents at the beginning of the school year. A second survey was disseminated to students at the end of second quarter. Students delivered the final survey for the parents to complete at the end of the third nine weeks.

Both formal and informal interviews for students and parents were conducted to determine how they liked the program, if they experienced problems, and if they found it informative. Formal interviews for students were held during the school day. Formal interviews for parents were held during parent-teacher conferences. Informal interviews were held with both parents and students via e-mail and personal memos and provided researchers the majority of the feedback.

A feature in the school administration program allowed recording the GPA statistics of all participants at the end of each quarter. The statistics feature also allowed for recording the number of times students and parents accessed the software.

Results

Student Progress

Student GPAs were analyzed following the first, second, and third quarters of the 2001-2002 school year. The results of averaged GPAs are shown in Figure 1. Based on a 4.0 grading scale, first quarter GPAs averaged 2.18, while second quarter dropped to 1.83, and third quarter

increased to 2.33. Outside factors that may have influenced first quarter grades include students' adjustment to new teachers and schedules and review of content material. Throughout the first quarter, students were becoming acquainted with the new online grading program.

Lack of weekly mandated visits during the second quarter resulted in a drop in student and teacher communication concerning grades. A drop in GPAs was also noted. The students were not taken to the computer lab on weekly visits; however, if a student wanted to view his/her grades using the classroom computer, access was not denied. The number of hits from both students and parents decreased during the second quarter.

Third quarter found students enthusiastic and more comfortable using the online grading program. This was accompanied by an increase in GPAs. Figures 2, 3, and 4 show the GPA fluctuation by performance groups. The most noteworthy increase was evident in Figure 2. The immense fluctuation in the low GPA group was enough to skew the results in Figure 1.

Students were taken to the computer lab for weekly mandated visits promoted by the classroom teachers.

Figure 1. GPA Averages

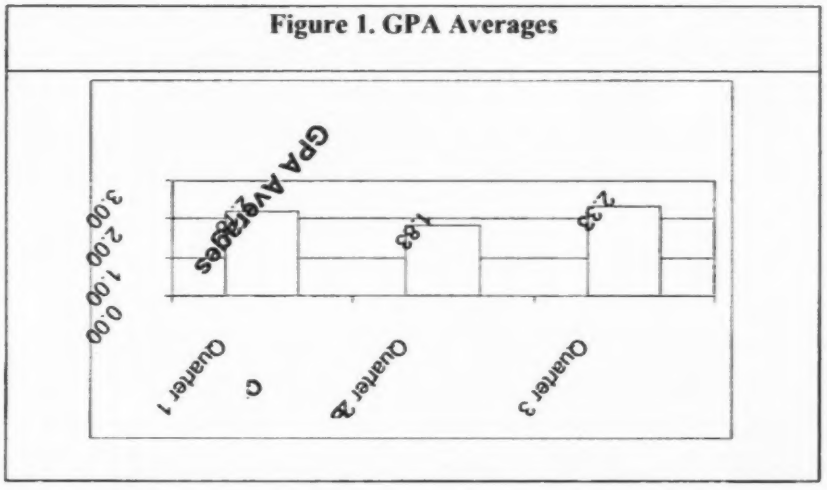

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Figure 2. Low GPA Group

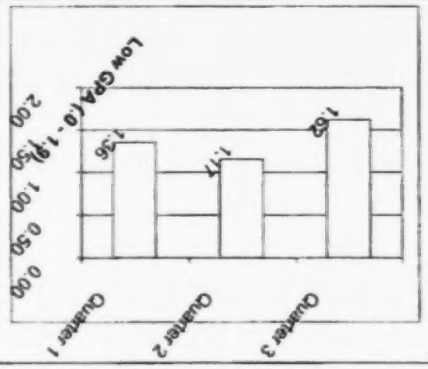


Figure 3. Average GPA Group

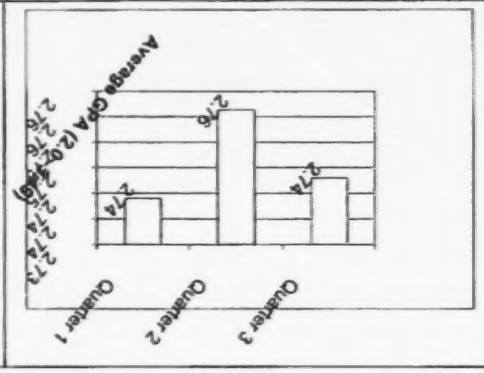
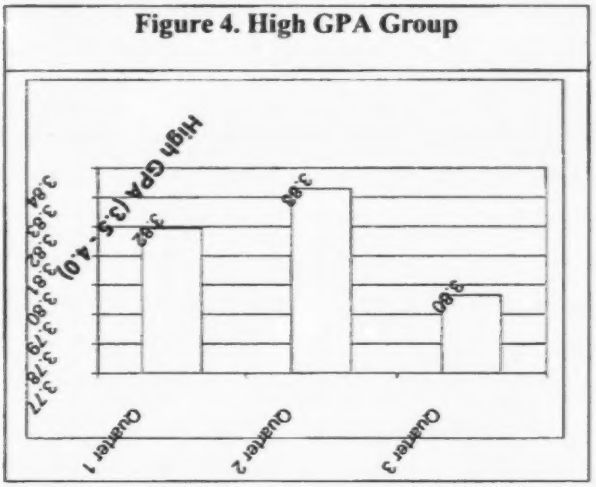


Figure 4. High GPA Group



Student Reflections

Students wrote a weekly memo to one of their teachers after viewing their grades online.

Students made supporting comments such as these:

"I am really glad that my grade went up. My parents will be glad too."
"All of my grades are good. In math, I thought I had a C, but I have a B."
"I am surprised how my reading grade went up in just one day."
"I like looking at my grades on the Internet."

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> "I was not surprised at my grades, I was however glad to see that I brought English and social studies up."
> "Wow, I can't believe it. My grade is an A- in social studies… it is funny how it changed from a B+ to an A- in one day."
> "Getting my grades off the computer is fun. There is a lot of information about school, grades, lunch, and other stuff."

At the beginning of the research, 73% of the students surveyed reported having access to the Internet at home, library, friends' houses, or parents' workplace. Eighty percent of the students felt that checking the online grading program helped them to earn better grades. At the end of the second grading period, 56% of the surveyed students stated they had checked their grades online independently. Seventeen percent averaged weekly visits, while 13% averaged less than once a week, and the remaining 70% checked their grades only once a month.

Parental Involvement

Table 1 represents the total number of hits to the PowerSchool system during each of the quarters. These hits are district wide, which means they are inclusive of grades kindergarten through twelfth grade.

Table 1. District Wide Parental Access Statistics

	1st Quarter	2nd Quarter	3rd Quarter
Total accesses by parents to the online grading system	2848	2744	2901
Number of students whose records were accessed	456 (63.7%)	414 (57.9%)	452 (63.7%)
Average number of parent accesses per day	46.7	35.6	47.6
Number of parents signed up to receive progress reports via email	115 (16%)	115 (16%)	135 (19%)

Sixth-grade parents shared personal reflections in the surveys:

> "PowerSchool has allowed us to stay on top of grades, discuss assignments that were difficult…easy access to teachers…thanks for providing this service."

"It is the best thing that has happened for parents and students. It is a wonderful thing."
"PowerSchool is a great tool."
"I like getting the email progress report every week."
"I wish this was available years ago, thank you PowerSchool."
"I love it…wish we had it when I was in school…we would have done better."

Table 2. Parent Survey Results

Responses on Parent Survey	Percentage
Parents checked on the Internet and were aware of grades prior to distribution of report cards.	69%
Parents checked their child's grades on the Internet weekly.	44%
Child and parent who viewed grades together on the Internet.	43%
Parents believed a direct link between student academic achievement and Internet access to grades existed.	59%
Parents thought parent/child communication concerning school improved.	54%
Email/Internet access provided for better communication between parents and teachers.	37%
Parents viewed PowerSchool as beneficial.	69%

Teacher Interaction

The lab was reserved every week during the first and third quarters to allow student mandated access to the online grading program. During the first quarter, students required extensive teacher assistance to log-on and access their grades. By the third quarter, students could independently access their grades and complete their memos. The students looked forward to this designated time in the lab and showed disappointment when the research was completed. Outside the computer lab, the students requested time on classroom computers to check their grades. Teachers appreciated student independence to check grades rather than completing hand-written progress reports.

Administrative Impact

During the first and third quarters, the middle school principal gave this research project preferential scheduling in use of the computer lab. The principal approved the surveys given to parents and students. He provided extensive training to the staff in utilization of this web-based program. Under administrative direction, several training sessions were provided for parents to become acquainted with the online program. Through this program, the administration made online listing of the classes available for the following year.

Conclusion

The results of the 2001-2002 implementation of the web-based student information management program, PowerSchool, are consistently supportive of beneficial impacts on students, teachers, and parents. Overall student academic performance, as measured by GPA, increased by .15 with teacher mandated use of PowerSchool. This answered our first research question concerning student academic improvement due to regularly checking their grades. Research question number two can best be answered by noting the direct correlation between the students' access, parent hits on the web-based program, and student GPAs. The results of Table 1 also show the parents' involvement.

Table 3. PowerSchool Hits and GPAs

	1st Quarter	2nd Quarter	3rd Quarter
Student Hits	456	414	452
Parent Hits	2848	2744	2901
GPAs	2.18	1.83	2.33

As expected, higher-level students' academic progress did not fluctuate. Parents of higher-level students reported to the researchers that they were not concerned with their children's grades as the children were self-motivated and would maintain their usual average. The researchers were surprised, however, with the increased averages of the two top performance groups during the non-mandated second quarter. The low GPA achievers, as expected, made the most dramatic progress under teacher guidance. This helped clarify question three in determining improvement of student academic progress with teacher encouragement. Even though the low GPA students were the fewest in number, their progress had a profound bearing on the total results as shown in Figure 1. Certainly, there are many factors, including learner maturation, changes in pedagogy over time, and interest level in course content, which may have influenced GPA increases. However, the large jump in the grade point averages of our low achieving students who used the online system to track their grades is encouraging and warrants further study. The researchers learned an incredible amount through this research, but like any research they continue to have unanswered questions:

- Will students' utilization of the web-based program continue throughout the rest of their school years?
- Will use of online communication with teachers and parents increase?
- Will the enthusiasm from the sample group carry over to siblings and classmates?

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Appendix

Appendix A

Parent Survey
(NO NAMES PLEASE)

Please circle the answer that best applies to you or fill in the blank.

1. Do you log-on to the Internet?

   Yes No

2. If you do log-on, where do you access the Internet?
   Home
   Work
   Library
   Other _____

3. When you know your child will be absent from school, do they get their assignments before they are absent or after they return to school?

   Before After

4. After a school absence, does your child complete and hand-in his/her assignments on time?

   Always Almost always Sometimes

5. Are your concerned about your child's schoolwork and how they do in school?

   Always Almost always Sometimes

6. Before you receive your child's report card, do you know what your child's grades will be?

   Always Almost always Sometimes Hardly ever

7. If you were aware of your child's report card grades, how did you know?

   Asked teacher Teacher told me Checked on Internet

8. If you checked your child's grades on the Internet, how often did you do this?

   Once a day Once a week Once a month

9. If you used the Internet to check your child's grades, did your child view their grades with you?

Yes No

10. By checking your child's grades on the Internet, did you think this helped them to earn better grades?

Yes No

11. By checking your child's grades on the Internet, do you think it helped your child be more aware of their assignments and grades?

Yes No

12. If you did not use the Internet to check your child's assignments and grades, do you think doing so would be helpful to you and your child?

Yes No

Appendix B

Initial Student Survey
(NO NAMES PLEASE)

Please circle the answer that best applies to you or fill in the blank

1. Other than at school, do you log-on to the Internet?
   Yes No

2. If you do log-on, where do you access the Internet?
   Home Library Other_____

3. When you know you will be absent from school, do you get your assignments before you are absent or after you return to school?
   Before After

4. After a school absence, do you complete and hand-in your assignments on time?
   Always Almost always Sometimes Hardly ever

5. Are your parents concerned about your schoolwork and how you do in school?
   Always Almost always Sometimes Not very much

6. Before you receive your report cards, do you know what your grades will be?
   Always Almost always Sometimes Hardly ever

7. If you were aware of your report card grades, how did you know?
   Asked teacher Teacher told me Checked on Internet

8. If you checked your grades on the Internet, how often did you do this?
   Once a day 2 or 3 times a week once a week other_____

9. If you used the Internet to check your grades, did your parent(s) view your grades with you?
   Yes No

10. By checking your grades on the Internet, did you think this helped you to earn better grades?
    Yes No

11. By checking your grades on the Internet, do you think it helped your parent(s) be more aware of your assignments and grades?

Yes No

12. If you did not use the Internet to check your assignments and grades, do you think doing so would be helpful to you?

Yes No

End of 2nd Quarter Student Survey

During this second nine weeks have you checked your grades using PowerSchool?

Yes No

If yes, how often do you check your grades?

Once a month Twice a month Once a week More than once a week

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